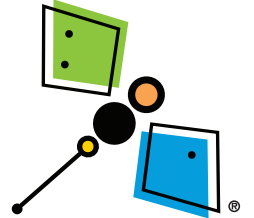


DragonflyTV: GPS Activity 13

Home Prickly Home



Arizona-Sonora Desert Museum
Tucson, AZ
desertmuseum.org



Cactus

We're Mark and Alex, and we're junior docents at the Arizona-Sonora Desert Museum. We do presentations for museum visitors about the plants and animals you can see here, especially the saguaro cactus. One visitor asked a question about the holes that are visible in the arms of the cactus: Do the holes in a saguaro cactus always face the same direction?

We walked out into the cactus forest to look at ten saguaros that have holes in them. These holes serve as nests for birds. We counted the holes, and made a note about which direction they face. We also looked for clues about what kinds of birds are using the nests.





Icebreaker

Develop a dichotomous key like biologists use.



20-30 minutes

DragonflyTV Skill: Observing

Guide your kids as they

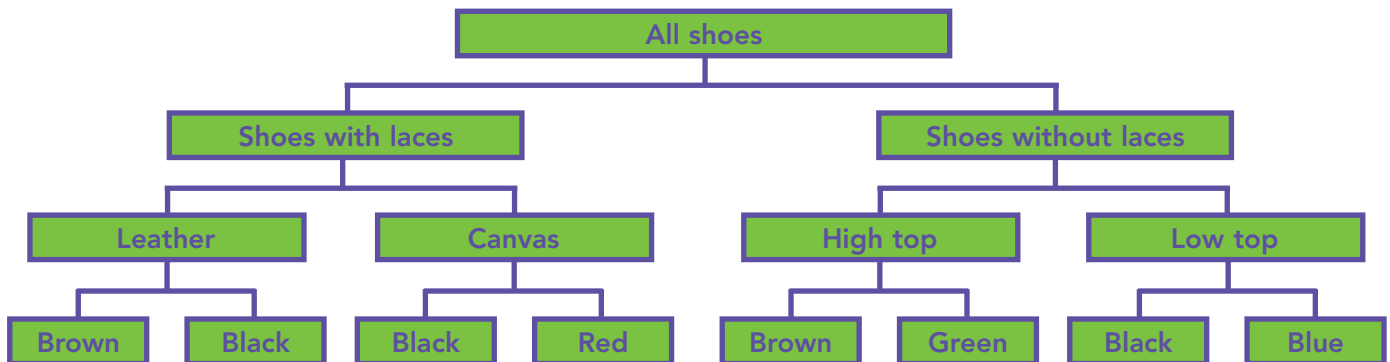
- 1) Have each person take off his or her left shoe and toss it into a big pile.
- 2) Brainstorm observations about the characteristics (attributes) of the shoes (e.g., color, material, shoelaces, logos).
- 3) Have the students decide how to divide the shoes into two groups so that all the shoes in a given pile share a common characteristic. (For example: shoes with laces vs. slip-on shoes or leather shoes vs. cloth shoes.)
- 4) Make a chart listing the characteristics of each of these two groups.
- 5) Continue to divide each group into two based on other characteristics until each shoe is in its own group. (See example below.)
- 6) Use your chart to see if you can identify each person's shoe!

You'll need:

- a group of kids wearing shoes
- chalkboard/chalk or whiteboard/marker or chart paper/pencil!

DFTV Science Helper

A dichotomous key like this can be developed in numerous ways, so be flexible in how your students arrive at their scheme. After you do this with shoes, you can try the activity again with a variety of rocks or tree leaves, for example.





Investigation

Saguaro Nest Cavities



4-5 hours spread over two days

Discover how some desert birds keep their cool!

Guide your kids as they

- 1) Measure and cut a 5-inch diameter circle in the center of one side of each ice chest. (You can use a compass to measure and mark the circle or use a 5 inch diameter circular lid as a template. Use the X-acto knife to carefully cut out each circle.) (See Figure 1.)
- 2) Hang a thermometer from the lid of each ice chest so that it will hang in the center of the ice chest. (Exactly how you attach the thermometers to the lids will depend on the particular type of thermometer you use.)
- 3) Place the lids on the ice chests.
- 4) Locate each ice chest facing either due north, south, east or west. The ice chests should be located at least 5 feet off the ground, in a sunny location (not shaded by trees or buildings). The ice chests need to be placed far enough apart that they will not shadow one another during the course of the day.
- 5) Be sure to securely attach the ice chests to the posts, wall or fence.
- 6) Check and record the temperature of each "nest cavity" when first positioned as a baseline and again every half hour throughout the day. You may want to make a chart like the one shown on the following page.

You'll need:

- (4) small Styrofoam ice chests with lids
- compass to draw circles (or a 5-inch diameter lid and pencil)
- X-acto knife
- (4) thermometers
- (4) 5 foot high posts or an approximately 5 foot tall wall or fence
- stepstool (optional)

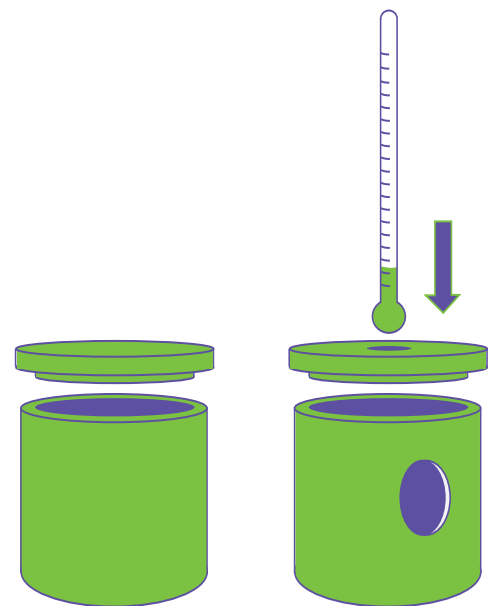


figure 1



DFTV Kids Synthesize Data and Analysis

Use a data table like this one to organize your measurements and readings:

Nest Cavity	Starting	1/2 Hour	1 Hour	1-1/2 Hour	2 Hour	2-1/2 Hour	3 Hour	3-1/2 Hour	4 Hour
	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature
North Facing									
South Facing									
East Facing									
West Facing									

Questions:

- Which nest cavity was the coolest? Which was the warmest?
- From which direction was the wind blowing?
- Which nest cavity would be best for desert birds? Which nest cavity direction would be best for birds where you live?
- Do you think that your results would be different at a different time of year? If so, how?

DFTV Adult Tip

Although this activity is based on the desert climate, the most favorable direction a nest cavity faces depends on the climate. A north-facing cavity may be good for a desert bird, but not for a bird in a northern climate, for example. Ask your kids to consider the climate where they live as they answer the questions above.



Keep Exploring!

What happens to the nest cavity temperatures once the sun begins to set? Is there a difference in the way the nest cavities cool, based on the direction they face? Help your group design an investigation that looks at nest temperatures overnight.